

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Please amend claim 1 and add new claims 24-26 as follows:

Claim 1 (Currently amended): A magnetic film comprising:

a magnetic alloy T-M-X wherein T is at least 90 atomic percent of one element selected from the group consisting of Fe, Co, and Ni, M is selected from the group consisting of B, Al, Si, P, Ti, V, Cr, Cu, Ga, Ge, Zr, Nb, Mo, Ru, In, Sn, Hf, and Ta, and X is selected from the group consisting of N, O, and C; and

at least a single nanolamination of ~~a~~ an amorphous material selected from the group consisting of Al₂O₃, SiO₂, ZrO₂, yttria-stabilized ZrO₂, TiO₂, HfO₂, Ta₂O₅, Si₃N₄, AlN, B₄C, SiC[,] and Si₄N₄, Ta, Zr, and Hf; wherein said nanolamination is a discontinuous layer embedded within the magnetic alloy.

Claim 2 (Original): A magnetic film according to claim 1, wherein T is Fe and X is N.

Claim 3 (Original): A magnetic film according to claim 1, wherein the nanolamination has a thickness of approximately 0.4 to 1.7 Å.

Claim 4. (Withdrawn): A film structure comprising:

at least a first substantially crystalline layer of the compound T-M-X wherein T is selected from the group consisting of Fe, Co, and Ni, M is selected from the group consisting of B, Al, Si, P, Ti, V, Cr, Cu, Ga, Ge, Zr, Nb, Mo, Ru, In, Sn, Hf, and Ta, and X is selected from the group consisting of N, O, and C;

nanolaminations of a material selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf;

said nanolaminations being contained within said first layer; and

at least a second layer of a material selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf;

said second layer being laminated adjacent to said first layer.

Claim 5. (Withdrawn): A film structure according to claim 4 wherein T is Fe and X is N.

Claim 6. (Withdrawn): A film structure according to claim 4 wherein each of the nanolaminations has an individual thickness of approximately 0.4 – 1.7 Å.

Claim 7. (Withdrawn): A film structure comprising:

at least a first substantially crystalline layer of the compound Fe-M-O-N wherein M is selected from the group consisting of B, Al, Si, P, Ti, V, Cr, Cu, Ga, Ge, Zr, Nb, Mo, Ru, In, Sn, Hf, and Ta; said first layer contains nanolaminations of a material selected from the group

consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf;

at least a second layer of a material selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf; and
said second layer being laminated adjacent to said first layer.

Claim 8. (Withdrawn): A film structure according to claim 7, wherein the nanolaminations have a thickness of approximately 0.4 to 1.7 Å.

Claim 9. (Withdrawn): A film structure for a GMR head comprising:

at least a single layer of a magnetic film for the GMR head including:

at least a first layer of a magnetic compound T-M-X wherein T is selected from the group consisting of Fe, Co, and Ni, M is selected from the group consisting of B, Al, Si, P, Ti, V, Cr, Cu, Ga, Ge, Zr, Nb, Mo, Ru, In, Sn, Hf, and Ta, and X is selected from the group consisting of N, O, and C; and

nanolaminations within said first layer of a material selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf.

Claim 10. (Withdrawn): A GMR head according to claim 9 wherein multiple layers of the magnetic film are alternately laminated with significantly relatively thinner layers of a material

selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf. Claim

11. (Withdrawn): A method of forming a film structure having at least a single layer magnetic film comprising a magnetic material and at least one nanolamination of a different material, the method comprising:

- aligning a substrate with a first deposit target;
- depositing a magnetic material from said first deposit target;
- aligning the substrate with a second deposit target;
- depositing a nanolamination from said second deposit target;
- performing the depositions in an environment of a reactive gas; and
- annealing the film structure at a temperature less than about 350°C .

Claim 12. (Withdrawn): A method according to claim 11 wherein the reactive gas is selected from the group consisting of N_2 , N_2O , O_2 , CO_2 , CH_4 or NH_3 .

Claim 13. (Withdrawn): A method according to claim 11 wherein said first deposit target is a Fe-Al target and said second deposit target is a Al_2O_3 target.

Claim 14. (Withdrawn): A method according to claim 13 wherein power in the range of about 100-400 W is applied to the Al_2O_3 target.

Claim 15. ((Withdrawn): A method according to claim 11 wherein said substrate is alumina-TiC composite ceramic.

Claim 16. (Withdrawn): A method according to claim 15 wherein said composite ceramic is coated with sputtered amorphous alumina.

Claim 17. (Withdrawn): A method according to claim 11 wherein said laminated films are N doped.

Claim 18. (Withdrawn): A method according to claim 17 wherein a N₂/Ar gas mix is used as a process gas.

Claim 19. (Withdrawn): A method according to claim 11 wherein said laminated films are O doped and N doped.

Claim 20. (Withdrawn): A method according to claim 19 wherein a N₂O/Ar gas mix is used as a process gas.

Claim 21. (Withdrawn): A method of forming a film structure having at least a single layer magnetic film comprising a magnetic material and at least one nanolamination of a different material, the method comprising:

positioning a substrate under a first deposit target;

depositing a magnetic material from said first deposit target, wherein the magnetic material is at least about 90% of Fe, Co or Ni;

positioning the substrate under a second deposit target;

depositing a nanolamination from said second deposit target; and

performing the depositions in an environment of a reactive gas.

Claim 22. (withdrawn): A disk drive comprising:

a magnetic disk;

a GMR head comprising the magnetic film of claim 1; and

an actuator arm for supporting the GMR head.

Claim 23. (Withdrawn): A disk drive comprising:

a magnetic disk;

a MR head; and

an actuator arm for supporting the MR head; wherein

the MR head comprises:

a magnetic alloy T-M-X wherein T is selected from the group consisting of at least about 90% Fe, Co, and Ni, M is selected from the group consisting of B, Al, Si, P, Ti, V, Cr, Cu, Ga, Ge, Zr, Nb, Mo, Ru, In, Sn, Hf, and Ta, and X is selected from the group consisting of N, O, and C; and

at least a single nanolamination of a material selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf.

Claim 24 (New): A magnetic film structure comprising:

a plurality of repetitions of magnetic layers alternately laminated with relatively thinner nonmagnetic layers, wherein said magnetic layers comprise:

a magnetic alloy T-M-X wherein T is at least 90 atomic percent of one element selected from the group consisting of Fe, Co, and Ni, M is selected from the group consisting of B, Al, Si, P, Ti, V, Cr, Cu, Ga, Ge, Zr, Nb, Mo, Ru, In, Sn, Hf, and Ta, and X is selected from the group consisting of N, O, and C; and

at least a single nanolamination of a material selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf, wherein said nanolamination is a discontinuous layer; and

said nonmagnetic layers are selected from the group consisting of Al_2O_3 , SiO_2 , ZrO_2 , yttria-stabilized ZrO_2 , TiO_2 , HfO_2 , Ta_2O_5 , Si_3N_4 , AlN , B_4C , SiC , Si_4N_4 , Ta, Zr, and Hf.

Claim 25 (New): A magnetic film structure according to claim 24, wherein T is Fe and X is N.

Claim 26 (New): A magnetic film structure according to claim 24, wherein the nanolamination has a thickness of approximately 0.4 to 1.7 Å.